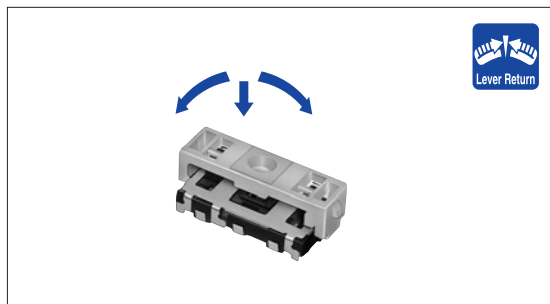




Semicircular lever control and a push operation put together in one knob.



Features

- Composite operation with a single knob vertical type device.
- Reflow solderable.

Applications

- For selecting menus in personal digital assistants, electronic organizers, notebook PCs and mobile phones
- For selecting menus in remote controllers
- For DVD players/recorders, digital still cameras, digital camcorders, flat panel TVs and portable audio devices

Typical Specifications

| Items | | Specifications |
|---|---------------|---------------------------------------|
| Rating (max.) / (min.) (Resistive load) | | 10mA 5V DC/50 μ A 3V DC |
| Output voltage | | 1V max. at 1mA 5V DC (Resistive load) |
| Operating force | Lever portion | 1 \pm 0.5N |
| | Push portion | 2.6 \pm 1N |
| Travel (Push operation) | | 0.4mm |
| Operating life | Lever portion | 100,000cycles |
| | Push portion | 100,000cycles |

Product Line

| Mounting height (mm) | Operating angle (Lever operation) | Operating force (Push function) (N) | Minimum packing unit (pcs.) | Product No. | Drawing No. |
|----------------------|-----------------------------------|-------------------------------------|-----------------------------|-------------|-------------|
| 4.2 | 15° | 2.6 \pm 1 | 900 | SLLQ110100 | 1 |
| 3.5 | 20° | 2.6 \pm 1 | 1,400 | SLLQ120100 | 2 |

Refer to P.310 for product specifications.
Refer to P.311 for taping package specifications.

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line
Package TypeMulti Control
Devices

TACT Switch™

Custom-
ProductsVariable
Resistor TypeSwitch
Type

Dimensions

Unit:mm

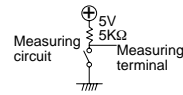
| No. | Style | PC board mounting hole and land dimensions (Viewed from switch mounting face) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|--|--|----------------|----------------|----------------|----------------|----------------|----------------|----|---|--|---|--|--|--|-----|--|---|--|---|--|--|------|--|--|--|--|---|---|--|
| 1 | <p>Mounting height 4.2mm</p> <table border="1" style="margin-top: 10px;"> <caption>Out put code</caption> <thead> <tr> <th>Terminal</th> <th>1</th> <th>2</th> <th>C₁</th> <th>C₂</th> <th>T₁</th> <th>T₂</th> </tr> </thead> <tbody> <tr> <td>CW</td> <td>○</td> <td></td> <td>○</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CCW</td> <td></td> <td>○</td> <td></td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>PUSH</td> <td></td> <td></td> <td></td> <td></td> <td>○</td> <td>○</td> </tr> </tbody> </table> | Terminal | 1 | 2 | C ₁ | C ₂ | T ₁ | T ₂ | CW | ○ | | ○ | | | | CCW | | ○ | | ○ | | | PUSH | | | | | ○ | ○ | |
| Terminal | 1 | 2 | C ₁ | C ₂ | T ₁ | T ₂ | | | | | | | | | | | | | | | | | | | | | | | | |
| CW | ○ | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCW | | ○ | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PUSH | | | | | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | <p>Mounting height 3.5mm</p> <table border="1" style="margin-top: 10px;"> <caption>Out put code</caption> <thead> <tr> <th>Terminal</th> <th>1</th> <th>2</th> <th>C₁</th> <th>C₂</th> <th>T₁</th> <th>T₂</th> </tr> </thead> <tbody> <tr> <td>CW</td> <td>○</td> <td></td> <td>○</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CCW</td> <td></td> <td>○</td> <td></td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>PUSH</td> <td></td> <td></td> <td></td> <td></td> <td>○</td> <td>○</td> </tr> </tbody> </table> | Terminal | 1 | 2 | C ₁ | C ₂ | T ₁ | T ₂ | CW | ○ | | ○ | | | | CCW | | ○ | | ○ | | | PUSH | | | | | ○ | ○ | |
| Terminal | 1 | 2 | C ₁ | C ₂ | T ₁ | T ₂ | | | | | | | | | | | | | | | | | | | | | | | | |
| CW | ○ | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCW | | ○ | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PUSH | | | | | ○ | ○ | | | | | | | | | | | | | | | | | | | | | | | | |

- Detector
- Push
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- Multi Control Devices
- TACT Switch™
- Custom-Products

- Variable Resistor Type
- Switch Type

Product Specifications

| Items | SKQU | | SSAF | SRBE | SLLB ※ | SLLB5 ※ | SLLQ | | |
|--|--------------------------------|---------------------|--|---|--|---------------------|----------------|-----------------|------------------|
| | SKQUAA, SKQUBA | SKQUCA, SKQUDB | | | | | | | |
| Detector | -30°C to +85°C | | -10°C to +60°C | | | | -40°C to +85°C | | |
| Push | Rating (max.) (Resistive load) | | 50mA 12V DC | 20mA 5V DC | 1mA 5V DC | 10mA 5V DC | | | |
| Slide | Output voltage | | 1V max. at 1mA 5V DC (Resistive load) | | | | | | |
| Rotary | Directional resolution | | 4-direction | 9-direction | _____ | | | | |
| Encoders | Insulation resistance | | 100MΩ min. 100V DC | 10MΩ min. 100V DC | 50MΩ min. 50V DC | 100MΩ min. 100V DC | | | |
| Power | Voltage proof | | 250V AC for 1minute | 100V AC for 1minute | 50V AC for 1minute | 100V AC for 1minute | | | |
| Dual-in-line Package Type | Directional operating force | | 1.57 ^{+0.49} _{-0.59N} | 1.57 ^{+0.39} _{-0.59N} | 8-direction 0.5N ^{+0.5} _{-0.35N} | 0.65±0.3N | | 1±0.5N | |
| Multi Control Devices | Push operating force | | — | 3.14±0.59N | 2.5 ^{+0.7} _{-0.5N} | 3.5±1.5N | 2±1N | 2.5±1N | 1.6±1N 2.6±1N |
| TACT Switch™ | Encoder detent torque | | _____ | | 3±2mN·m | _____ | | | |
| Custom-Products | Terminal strength | | 29.4N for 1minute | 49N for 1minute | _____ | | 3N for 1minute | | |
| Variable Resistor Type | Actuator strength | Pushing direction | 50N | | | | | 30N | |
| | | Operating direction | _____ | | 50N | _____ | 10N | | |
| Switch Type | Solder heat resistance | Manual soldering | 350°C max. 3s max. | 350±10°C 4 ⁺¹ ₀ s | 350±5°C 3s max. | | | | |
| | | Dip soldering | 260°C max. 5s max. | _____ | | | | | |
| | | Reflow soldering | Please see P.311 | | | | | | |
| Endurance | Vibration | | 10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z for 2 hours respectively | | | | | | |
| | Operating life | Directional | _____ | | _____ | | | | |
| | | Center push | 50,000 cycles | 100,000 cycles | 500,000cycles | _____ | | _____ | |
| | | Encoder | _____ | | _____ | 100,000cycles | _____ | | |
| Operating life without load | | _____ | | | | 100,000cycles | 100,000cycles | | |
| Operating life with load (at rated load) | | _____ | | | | | | | |
| Environmental test | Cold | | -30±2°C for 96h | -40±2°C for 96h | | -20±2°C for 96h | | -40±2°C for 96h | |
| | Dry heat | | 80±2°C for 96h | 85±2°C for 96h | | | | | |
| | Damp heat | | 60±2°C, 90 to 95%RH for 96h | 40±2°C, 90 to 95%RH for 96h | | | | | |



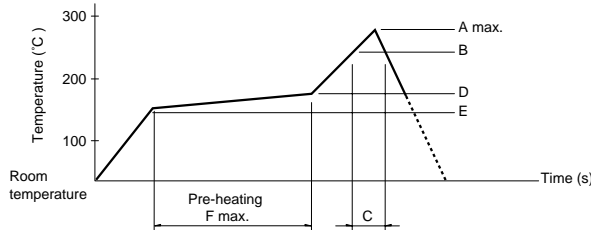
Notes

1. Shall be in accordance with individual specifications.
2. ※ The operating temperature range for automotive applications can be raised upon request. Please contact us for requirements of this kind.

Soldering Conditions

Example of Reflow Soldering Condition

1. Heating method: Double heating method with infrared heater.
2. Temperature measurement: Thermocouple 0.1 to 0.2 CA(K) or CC(T) (at solder joints copper foil surface). A heat resistive tape should be used to fix thermocouple.
3. Temperature profile



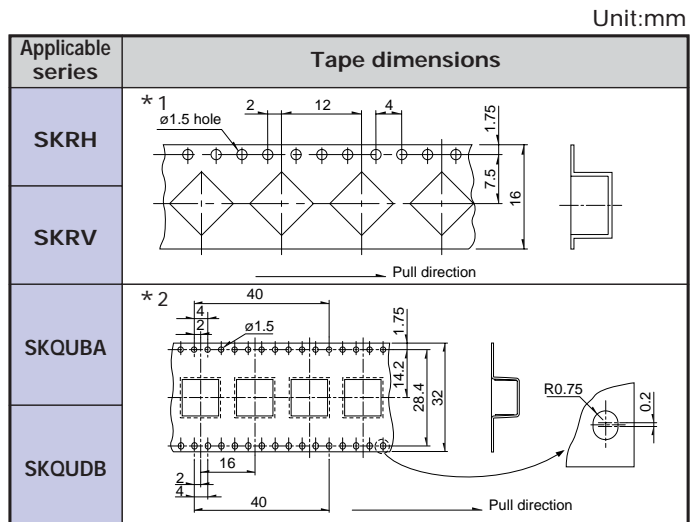
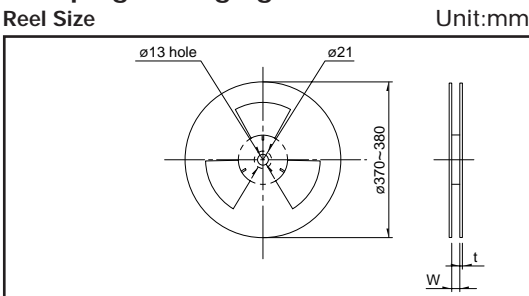
| Series(Reflow type) | A() 3s max. | B() | C(s) | D() | E() | F(s) |
|-------------------------------------|-----------------|------|------|------|------|------|
| SLLB, SLLB5, SLLQ | 240 | 230 | 20 | 150 | 150 | 120 |
| RKJXS/SKRV/SKRH/SKQUBA,DB/SSAF/SRBE | 260 | | 40 | 180 | | |

Notes

1. The above temperature shall be measured on the mounting surface of a PC board. There are cases where the PC board's temperature greatly differs from that of the switch, depending on the material, size thickness of PC boards and others. The above-stated conditions shall also apply to switch surface temperatures.
2. Soldering conditions differ depending on reflow soldering machines. Prior verification of soldering condition is highly recommended.

Taping Specifications

Taping Packaging



| Series | Number of packages(pcs.) | | | Reel width W(mm) | Reel thickness t(mm) | Tape width (mm) | Tape dimensions |
|--------|----------------------------|-----------------------------------|---------------------------------------|--------------------|------------------------|-------------------|-----------------|
| | 1 reel | 1 case (shipment within Japan) | 1 case (shipment outside of Japan) | | | | |
| SSAF | 1,200 | 2,400 | 2,400 | 24.4 | 2 | 24 | |
| SRBE | 1,300 | 2,600 | 5,200 | 25.4 | 2 | 24 | |
| SLLB | 1,350 | 2,700 | 5,400 | 24.4 | 3 | 24 | |
| SLLB5 | 1,500 | 3,000 | 6,000 | 24.4 | 3 | 24 | |
| SLLQ11 | 900 | 1,800 | 3,600 | 24.4 | 3 | 24 | |
| SLLQ12 | 1,400 | 2,800 | 5,600 | 24.4 | 3 | 24 | |
| RKJXS | 950 | 3,800 | 3,800 | 25.5 | 1.6 to 2 | 24 | |
| SKRV | 1,500 | 12,000 | 12,000 | 17.5 | 2 | 16 | * 1 |
| SKRH | 1,300 | 10,400 | 10,400 | 17.5 | 2 | 16 | |
| SKQUBA | 750 | 3,000 | 3,000 | 33.5 | 2 | 32 | * 2 |
| SKQUBB | 600 | 2,400 | 2,400 | 33.5 | 2 | 32 | |

Note

Please place purchase orders for taping products per minimum package units (1 reel or 1 case).

Detector
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